REMARKS

Claims 1-15 are all the claims pending in the application. By this Amendment, Applicant amends claims 6-10 for improved conformance with US practice. It is respectfully submitted that these conformity-related amendments have not narrowed the scope of the claims in any way. In addition, Applicant adds claim 16. Claim 16 is clearly supported throughout the specification *e.g.*, pages 8-10 and pages 18-22 of the specification.

I. Summary of the Office Action

The Examiner withdrew the previous rejections. The Examiner, however, found new grounds for rejecting the claims. Specifically, claims 1, 5, 6, 10, 11, and 13-15 stand rejected and claims 2-4, 7-9, and 12 contain allowable subject matter.

II. Claim Rejections under 35 U.S.C. § 101

The Examiner rejected claims 6 and 10 under 35 U.S.C. § 101. Applicant respectfully requests the Examiner to withdraw this rejection in view of the self-explanatory claim amendments being made herein.

III. Claim Rejections under 35 U.S.C. § 103

Claims 1, 5, 6, 10, 11, and 13-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,377,313 to Yang et al. (hereinafter "Yang") in view of U.S. Patent No. 5,345,327 to Savicki (hereinafter "Savicki"). Applicant respectfully traverses these grounds of rejection in view of the following comments.

The Examiner contends that Yang in view of Savicki suggests each feature of independent claims 1, 5, 6, 10, 11, and 13. This rejection is not supportable for at least the following reasons. First, independent claim 1, among a number of unique features, recites:

> calculating edge information comprising a grade and a direction of a slope of the extracted edge;
>
> selecting preset filter information based on the calculated edge information; and
>
> smoothing the digital data based on the selected filter information

The Examiner contends that Yang's removal of aliasing (col. 5, lines 41 to 46) discloses smoothing the digital data based on the selected filter information as set forth in claim 1 (*see* page 2 of the Office Action).

Yang, however, is not significantly different from the prior art disclosed in Applicant's specification. That is, Yang discloses conditional branching by detecting the edges of the video signal and enhancing the edge, while passing a lowpass pixel (the pixel not near an edge) directly to the image combiner (Fig. 3A; col. 3, lines 21 to 33 and col. 7, lines 19 to 54). In other words, in Yang, the filter is not applied only to the pixels near the edges and not to all of the digital data (Fig. 3A, col. 7, lines 26 to 38).

The Examiner alleges that col. 5, lines 41 to 46 of Yang disclose smoothing the digital data based on the selected filter information (*see* page 2 of the Office Action). Col. 5, lines 41 to 47 of Yang recite:

> As shown in FIG. 2A, the video samples from ADC 116 are provided to an (optional) anti-aliasing filter 210 within resampler 120. Filter 210 is a lowpass filter that removes high frequency components to prevent aliasing during resampling, (emphasis added). The video samples include spectral components from DC to 0.5.multidot.f.sub. SAMP. When the resampling frequency is lower than the sampling frequency, the higher spectral components alias and fold inband during resampling.

That is, as is visible from the above-quoted passage and Fig. 1 of Yang, **the anti-aliasing filtering occurs prior to the detection of the edges**. Since claim 1 recites that the filter is based on the calculated edge information, the anti-aliasing filter of Yang fails to disclose the preset filter as set forth in claim 1.

In other words, if the Examiner alleges that the preset filter set forth in claim 1 is the non-linear function of Yang (*see* page 2 of the Office Action), then the aliasing filter of Yang is not the non-linear function that is based on the calculated edge information. In other words, Yang fails to disclose applying the non-linear function on all the digital data as a whole using the selected preset filter. In Yang, the non-linear function is applied only to the detected edges (Figs. 3A and 3B; col. 2, lines 1 to 32). Moreover, in Yang, the non-linear function is dynamically generated (col. 2, lines 32 to 43). That is, the non-linear function is not preset and is not selected.

Savicki does not cure the deficient teachings of Yang. In general, Savicki discloses a circuit 101 for performing edge detections (Fig. 1, col. 3, lines 12 to 44). Specifically, Savicki discloses that measuring the slope of the input signal by the differentiator 115 and outputting an edge signal 117, which has a voltage proportional to that slope. In Savicki, since the only portion of input signal 109 which has a steep slope is the rising and falling edges of digital signal 305, the rising and falling edges can be identified from the edge signal 117. Shortly after the differentiator 115 encounters a rising edge in digital signal 305, the differentiator 115 generates the positive pulse shown in edge signal 117 in FIG. 4; similarly, shortly after the differentiator 115 encounters a falling edge in digital signal 305, the differentiator 115 generates the negative pulse shown in edge signal 117 in FIG. 4 (Fig. 1; col. 3, lines 28 to 44).

Since Savicki only discloses an edge detector, it clearly fails to cure the deficient teachings of Yang.

Moreover, the Examiner acknowledges that Yang does not teach or suggest "calculating edge information comprising a grade and a direction of a slope of the extracted edge". The Examiner, however, alleges that Savicki cures the deficient teachings of Yang (*see* page 3 of the Office Action). Savicki, however, only discloses calculating the slope of the edge and fails to disclose calculating the grade and direction of the slope. As such, it fails to cure the deficient teachings of Yang.

Therefore, "calculating edge information comprising a grade and a direction of a slope of the extracted edge....smoothing the digital data based on the selected filter information," as set forth in claim 1, is not suggested or taught by the combined teachings of Yang and Savicki, which lack smoothing all of the digital data as opposed to just edges based on the selected filter information, where the filter information is selected based on a grade and a direction of the slope of the extracted edge. In short, together, the combined teachings of these references would not have (and could not have) led the artisan of ordinary skill to have achieved the subject matter of claim 1. Claims 14 and 15 are patentable at least by virtue of their dependency on claim 1.

Moreover, dependent claim 15 recites: "wherein a shape of a smoothing range depends on the grade of the slope." The Examiner alleges that Yang in col. 2, lines 23 to 32 disclose these unique features of claim 15. As explained in greater detail above, Yang only discloses having the amount of enhancement of the edges vary based on the slope of the detected edges. Yang, however, does not disclose the shape of the smoothing range being dependent on the grade of the slope.

In addition, the above described position with respect to claim 15 is inconsistent with the Examiner's rejection of claim 1, where the Examiner acknowledges that Yang does not disclose calculating the edge information comprising the grade and direction of the slope (*see* page 3 of the Office Action). Savicki does not cure the deficient teachings of Yang. For at least these additional exemplary reasons, claim 15 is patentable over the combined teachings of Yang and Savicki.

Independent claims 5, 6, 10, 11, and 13 recite features similar to, although not coextensive with, the features argued above with respect to claim 1. Therefore, similar arguments are submitted to apply with equal force herein. For at least analogous exemplary reasons, claims 5, 6, 10, 11, and 13 are patentable over the combined teachings of Yang and Savicki.

Allowable Subject Matter

The Examiner's indication that claims 2-4, 7-9, and 12 contain allowable subject matter is gratefully noted. The rewriting of these claims is respectfully held in abeyance until arguments presented with respect to independent claims 1, 6, and 11 have been reconsidered.

New Claims

In order to provide more varied protection, Applicant adds claim 16. Claim 16 is patentable at least by virtue of its dependency on claim 1.

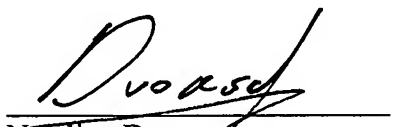
Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Nataliya Dvorson
Registration No. 56,616

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

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